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(54) Washing machines

(57) A washing machine 1 comprising a front opening drum 2 for receiving a load to be treated as by washing, the machine 1 including a support structure for the drum having two facing recesses, one 3 on the drum (Figure 1) and the other 4 on the body 5 of the machine 1, and a resilient support leg 6 which is mounted at each end in a respective recess 3 and 4 with a force fit.

The ends of the leg 6 terminate in a resilient block 15 of suitable material, such as rubber, mounted on plate 16. The cross-section of block 15 is such that it is a push or force fit into recesses 3 and 4, the flat surfaces 21 resisting tilting and twisting.

A strap 22 (Figure 4) restrains the drum against excess movement.

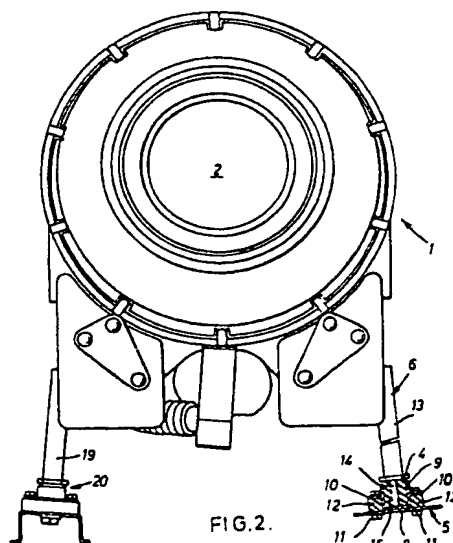


FIG. 2.

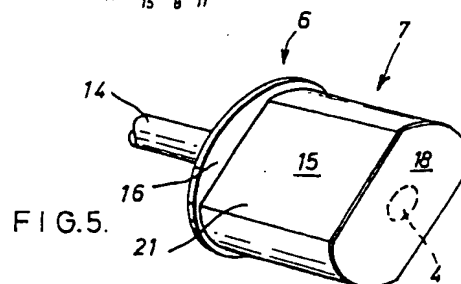


FIG. 5.

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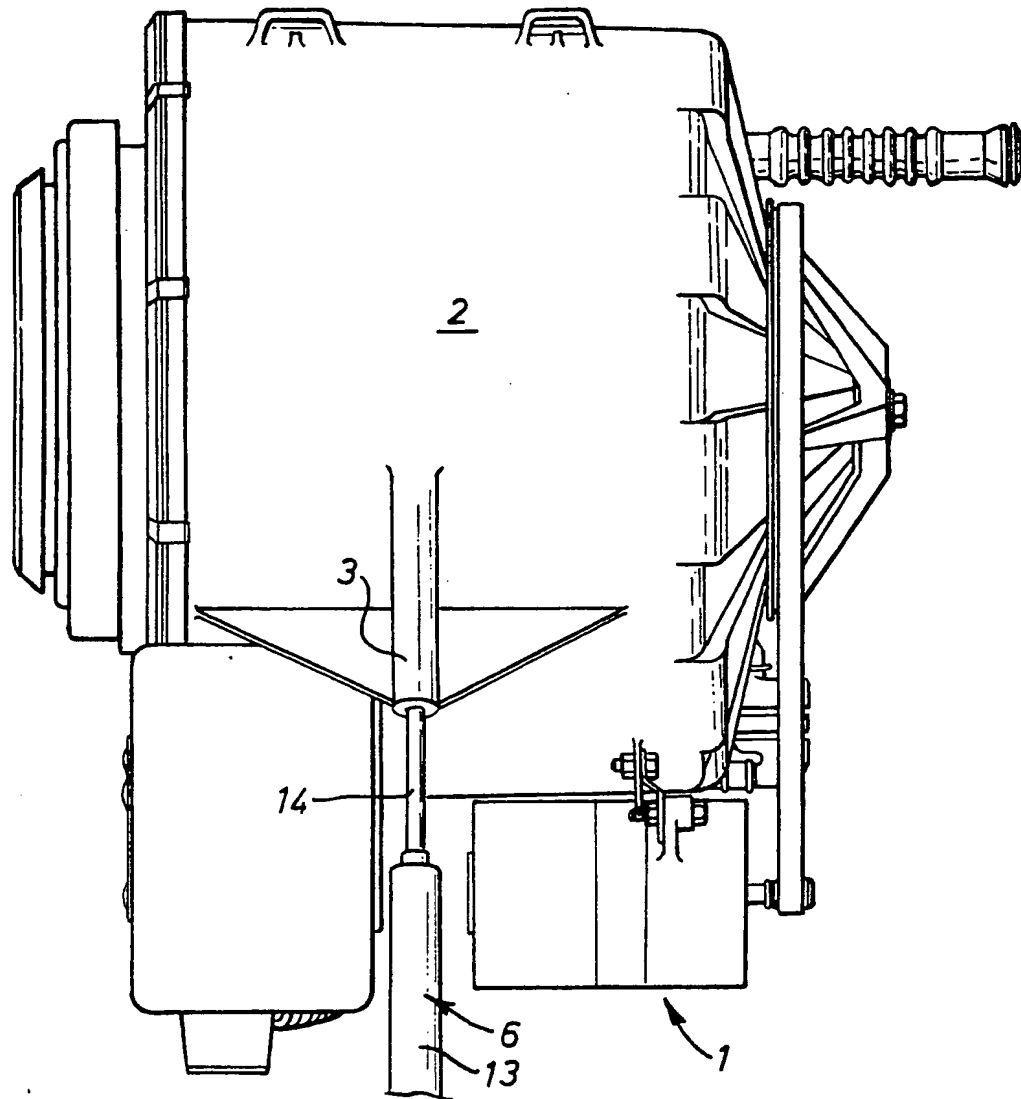
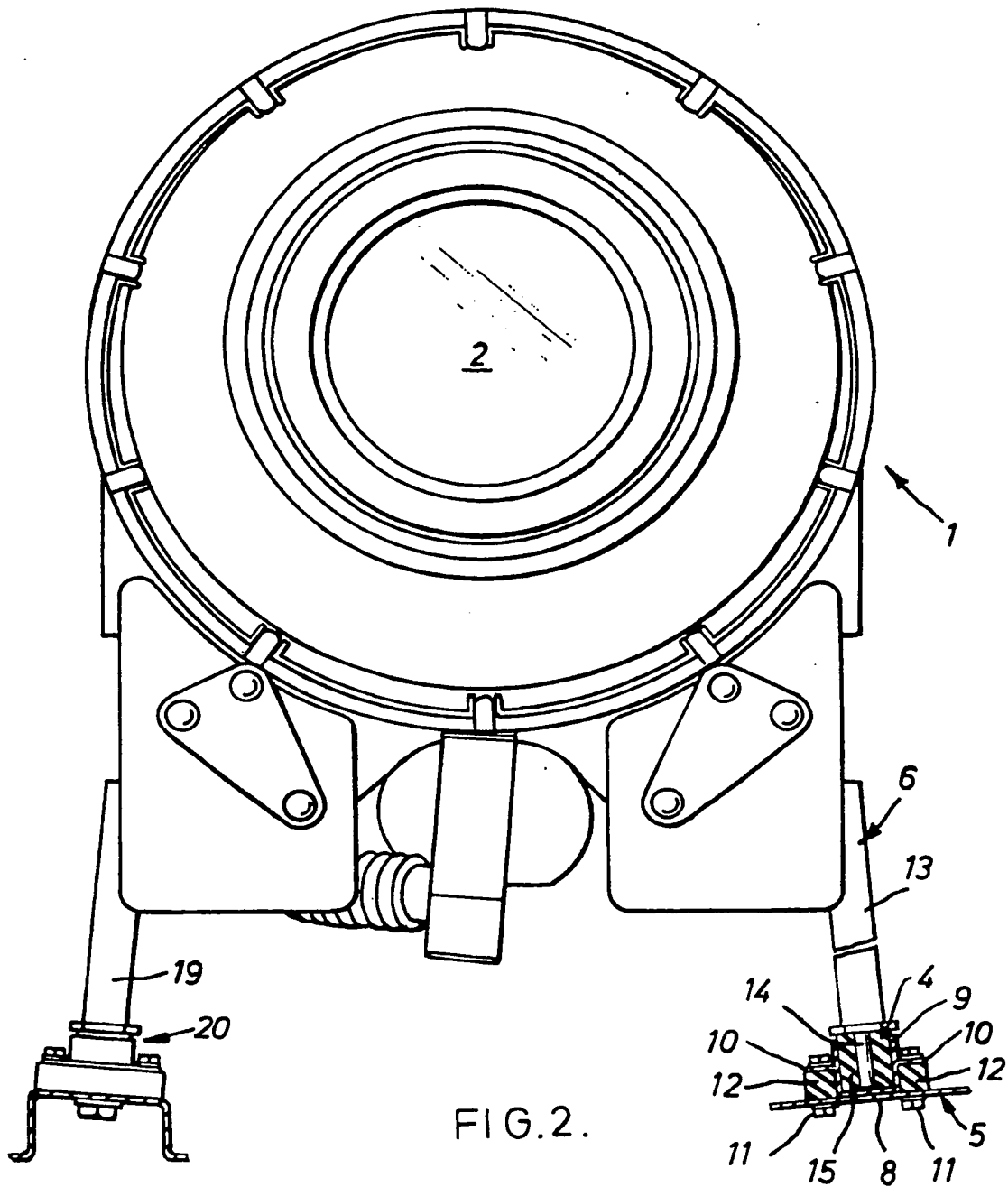
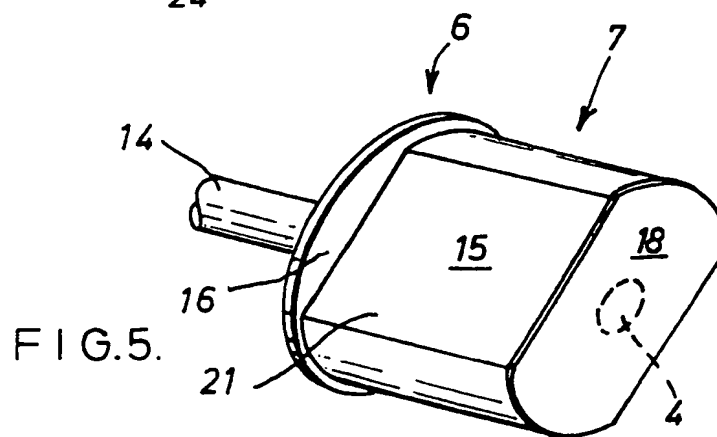
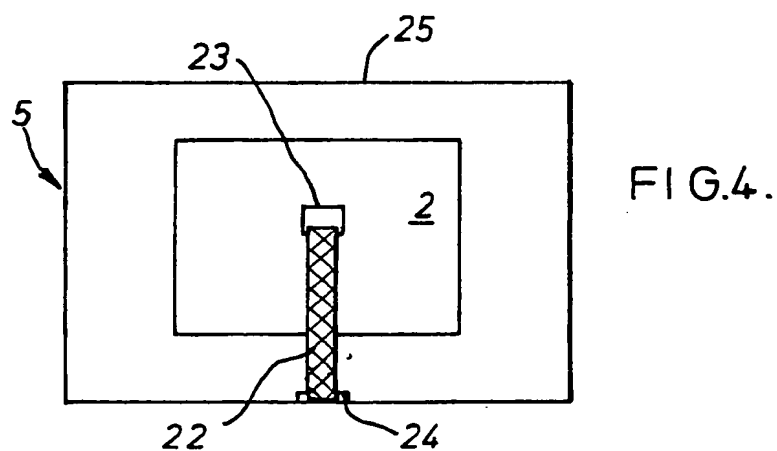
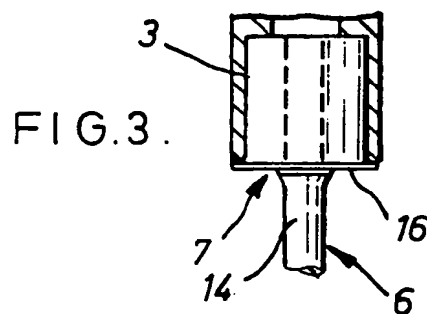


FIG.1.





SPECIFICATION **Washing Machines**

The invention relates to washing machines, particularly of the kind having a front opening drum for receiving a load to be treated.

According to the invention there is provided a washing machine comprising a front opening drum for receiving a load to be treated, a support structure for the drum having two facing recesses, one on the drum and the other on the body of the machine, and a resilient support leg which is mounted at each end in a respective recess with a force fit.

The drum may be integrally formed with the one recess.

The drum may be moulded from plastics material.

The body of this machine may mount an upwardly open housing comprising said other recess.

The housing may be a metal housing of channel shape in cross-section with oppositely directed flanges projecting from the limbs of the channel, whereby the housing may be secured to the body.

The housing may be of aluminium.

There may be resilient means interposed between the flanges and the body and securing means passing through the flanges, resilient means and an adjacent part of the body to secure the housing to the body.

The housing may be integrally formed with part of the body.

The part may be a plastics base comprising part of the body.

Each end of the resilient support strut may comprise a resilient material bush which is received in the respective recess with a force fit.

The bush material may be a rubber.

There may be means to restrain the drum during oscillation in a washing and/or rinsing cycle.

The restraining means may comprise a flexible, substantially inextensible elongate member secured at or adjacent one end to the drum and at or adjacent the other end to the body so that the member extends substantially fore and aft of the drum.

The member may be a woven polypropylene strap.

A washing machine embodying the invention is hereinafter described, by way of example, with reference to the accompanying drawings.

Fig. 1 is a rear elevational view of a part of a washing machine according to the invention;

Fig. 2 is a side elevational view of the washing machine of Fig. 1;

Fig. 3 is an enlarged view of part of a resilient support leg of the washing machine of Figs. 1 and 2;

Fig. 4 is, to a smaller scale, a top plan schematic view of the drum of Figs. 1 to 3; and

Fig. 5 is an enlarged view of one end of a resilient support leg of the machine.

Referring to the drawings, there is shown a washing machine 1 comprising a front opening drum 2 for receiving a load to be treated as by washing, the machine 1 including a support structure for the drum having two facing recesses, one 3 on the drum and the other 4 on the body 5 of

the machine 1, and a resilient support leg 6 which is mounted at each end in a respective recess 3 and 4 with a force fit.

The drum 2 is formed as by injection moulding in one piece from plastic material, the one recess 3 being formed integrally therewith during the moulding operation. The one recess 3 is downwardly open, and has a cross-sectional configuration which is complementary to an end 7 of the resilient support leg strut 5. The body 5 of the washing machine 1 also includes a lower part 8 which (in use) has an upwardly open recess, the other recess 4, which is directed towards the one recess 3 and is of a complementary cross-sectional shape to the cross-sectional shape of the other end of the resilient support leg 6.

Where the part 8 is of metal the other recess 4 is formed by a metal, in the embodiment shown, aluminium, housing 9 of channel section which has oppositely outwardly directed flanges 10 projecting from its limbs whereby the housing 9 is secured to the part 8 by securing means such as nuts and bolts 11 which pass through the flanges 10 and the body part 8 and intermediate resilient mounting members in the form of rubber blocks 12.

In an alternative embodiment, not shown, the body can have an integrally formed, as by moulding, plastic base, in which case the other recess 4 is integrally moulded therewith during the injection operation.

The resilient support leg 6 has a body 13 housing a spring or similar damper, and projecting from the housing is a rod 14 which is telescopically arranged in relation thereto. The end of the rod 14 remote from the housing 13 terminates in a resilient block 15 of suitable material such as rubber which is mounted on a plate 16 also carried by the rod 14. The rod 14 passes right through the block 15 to terminate flush with a face 18 remote from the plate 16. The cross-sectional area of the block 15 is such that it is a push or force fit in the one recess 3, and its length is equivalent to the depth of that recess 3. There is an identical block 15 terminating an extension rod 19 of the housing 13 of the support leg 6, which is a force or push fit in the other housing 4. Thus the upper and lower blocks 15 (as considered in use) are substantially identical in configuration, as are the recesses 3 and 4. Fig. 5 shows only the upper (in use) end of the leg 6, as will be understood from the foregoing.

In use, the blocks 15 are lubricated on their outer surfaces and the upper one is then forced fully home into the one recess 3. The block 15 at the other end of the leg 6 is then likewise forced fully into the other recess 4. With a second leg 19, the drum is then fully supported. (The drum is supported on only two legs). The leg 19 is shown to show the traditional mounting 20 using separate parallel blocks of rubber, clamping plates and a screw-engaged bottom projection of the housing of the leg. In practice, however, the leg 19 would be replaced by one identical to the leg 6 and would be mounted in the same way, that is in oppositely facing recesses like the recesses 3 and 4. Thus the drum 2 would have two recesses 3 formed integrally in it during

moulding.

The rubber blocks 15 are compressed by being forced into the recesses 3 and 4 so that if the drum is tilted from its equilibrium or static position, the blocks 15 act to restore the drum to the equilibrium position. to this end, the flat surfaces 21 of the blocks 15 (only one is shown in Fig. 5 there is another parallel to it) extend essentially fore and aft of the machine 1.

When the drum is mounted on the legs 6 it is connected with the body 5 by a restraining means comprising a woven polypropylene strap 22, one end of which is secured by a bracket 23 in a recess in a concrete balance weight on top of the drum 2, and the other end of which is secured by a bracket 24 to the body 5.

The strap 22 is flexible but not resilient, and it extends generally fore and aft of the machine 1. When the machine 1 is idle, the strap 22 is loose.

When a load of washing is inserted into the drum 2 through the front, the drum 2 tends to be pushed rearwardly. The strap 22 prevents it from tilting and engaging the rear wall 25 of the body 5. Also, when water flows into the machine 1, the drum 2 sinks slightly and tilts rearwardly, and also the washing or rinsing oscillation of the drum 2 commence. The strap 22 mechanically restrains the drum 2 so that it does not contact any part of the body 5 during oscillations, the strap becoming taut.

CLAIMS

1. A washing machine comprising a front opening drum for receiving a load to be treated, a support structure for the drum having two facing recesses, one on the drum and the other on the body of the machine, and a resilient support leg which is mounted at each end in a respective recess with a force fit.

2. A washing machine according to claim 1, the drum being integrally formed with the one recess.

3. A washing machine according to claim 2, the drum being moulded from plastics material.

4. A washing machine according to claim 3, the

body of the machine mounting an upwardly open housing comprising said other recess.

5. A washing machine according to claim 4, the housing being a metal housing of channel shape in cross-section with oppositely directed flanges projecting from the limbs of the channel, whereby the housing is secured to the body.

6. A washing machine according to claim 5, the housing being of aluminium.

7. A washing machine according to claim 6, there being resilient means interposed between the flanges and the body and securing means passing through the flanges, resilient means and an adjacent part of the body to secure the housing to the body.

8. A washing machine according to any one of claims 1 to 4, the housing being integrally formed with part of the body.

9. A washing machine according to claim 8, the part being a plastics base comprising part of the body.

10. A washing machine according to any preceding claim, each end of the resilient support strut comprising a resilient material bush which is received in the respective recess with a force fit.

11. A washing machine according to claim 10, the bush material being a rubber.

12. A washing machine according to any preceding claim, including means to restrain the drum during oscillation in a washing and/or rinsing cycle.

13. A washing machine according to claim 12 the restraining means comprising a flexible, substantially inextensible elongate member secured at or adjacent one end to the drum and at or adjacent the other end to the body so that the member extends substantially fore and aft of the drum.

14. A washing machine according to claim 3, the member being a woven polypropylene strap.

15. A washing machine, substantially as hereinbefore described with reference to the accompanying drawings.